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Beirut, 3-8 March 1975

FOOD CANNING INDUSTRY IN IRAQ[1/]

by

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and

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Selected Branches of the Food Industry
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1. INTRODUCTION

Food Canning Industry in Iraq is a relatively new industry. In 1963 a canning plant started operating in the city of Kerbala situated 100 kilometers south of Baghdad. This plant passed through many stages of developments and became the major producer of canned food in Iraq. It is now operated by the state canning company (one of the State Organization of Food Industry companies). It has a paid up capital of I.Dr. 1,257,344 and employs 1260 persons. The sales volume of the company exceeded five million Iraqi Dinars in Fiscal year 1973-1974 The company produces Tomato paste, Date syrup, Jams and canned vegetables.

This report will entirely be devoted to the activities of the public sector of the canning industry in Iraq since all other private companies are small in size and activities.

2. Raw Materials

Canning Industry in Iraq depends for most of its requirements of raw materials on the surplus of vegetables and fruits which are then processed or preserved to be made available for consumption during the off-season periods.

Table No. 1. shows the quantities and values of raw and packing materials used by the State Canning Company during the fiscal year 1972-1973. The table also shows that raw materials forms 67 percent of the total comodity requirements, 58 percent of which is imported mainly as concentrated tomato paste.

Local Supply of raw materials

Local production of raw materials during the years 1960-1969 including vegetables, fruits, dates and tomato will be discussed.

a) Vegetables (winter crop)

Vegetables that are grown during winter season include in the order of importance: Green broad beans, Green Onion, Lettuce, Turnip, Radish, Swiss Chard Carrot, Spinach, Cauliflower and Green French or kidney beans.

Table 2 shows local production and consumption of these vegetables during the years 1960-1969. This table reveals that about 10% of the local demand is imported. During 1968 and 1969 small surplus became available for export.

Table 3 shows the relative importance of different vegetables as far as quantity produced is concerned. It appears that green broad beans and green onion form 50% of total production of vegetables grown during winter 1970-1971.

b) Vegetables (summer crop)

These include Okra, Eggplant, Cucumber, Gherkins, water melon, green melon, green peper, pumpkin and green beans.

Table 4 shows local production and consumption of these vegetables during the years 1960 to 1969. This table shows that acreage has been doubled during 10 years period. Imports were continuously decreasing whereby surpluses became available for export.

Table No. 5 gives an idea on total production of winter and summer crop vegetables with their relative importance. It shows that 15-20% of total vegetable production is produced as winter crop of which summer crop vegetables form 80-85 percent of total production of vegetables.

c) Tomato

Table 6 shows local consumption of fresh tomato during the period 1964-1973. It is clearly seen that imports of fresh tomato are diminshing and greater quantities are made available for tomato paste production.

Local production of tomato is characterized by relatively low yeild per unit of area, being in the range of 8 tons per hectare as compared to 100-150 tons per hectare in other well developed countries.
Local production of tomato paste do not meet the demand, hence the balance is imported. Table 6 shows quantities of tomato paste imported and its equivalent of fresh tomato to obtain the total local demand of fresh tomato calculation.

is made on the basis of every ton of paste is produced from 6 tons of fresh tomatoes). The table shows that the country imports about 33% of its requirement of tomato (as fresh tomato). Tomato paste forms 20% of the total fresh tomato consumed.

d) Dates

Table 8 shows local production of dates in Iraq and the quantities exported. Less than 5% of this total available quantity of dates was used for date syrup production.

e) Fruits

Table 9 gives an idea about the type and quantities of fruits grown in Iraq, while table 10 shows the quantities of fruits exported and imported.

3. Production Capacities

A. Existing Plants:

The canning plants now operating in Iraq are as follows:

a. Kerbala Canning Plant

This plant has four production lines to produce tomato paste, date syrup, jams and canned vegetables.

b. Numaniya Tomato paste plant

c. Baquba Tomato paste plant

The above two plants situated in the cities of Numaniya (150 km south east of Baghdad) and Baguba (100 km. north east of Baghdad) produces tomato paste only at a capacity of 25 tons of paste per day for each plant.

Additional lines are being added to these two plants as will be explained later in this report.

The above three plants are operated by the State Canning Company which has its headquarters in Karbala. Table 11 shows the rate of progress which the company achieved during the last 6 years in terms of Sales quantity and value which was multiplied 20 times during this period. Table(11 a)shows the progress in terms of fixed capital investment which shows an increase of 866% over the last 6 years.(chart No. 1 shows this progress schematically).

Table No. 12 gives the quantities of products sold during 1972-1973 and 1973-1974 while table 13 gives the planned production of the company.

B. Plants Under Construction

a. Dohok Canning Plant

Planned to commence production during 1975 to produce the following:

1000 Ton/year Grape Juice
200 Ton/year Apple Juice
1000 Ton/year Fruit compote
300 Tons/year Jams
1000 Tons/year Dried Fruits
75 Tons/day Tomato paste

b. Hasir Canning Plant

Planned to start production during 1976 to produce the following:

1500 Ton/year Grape Juice
850000 liter/year Wine
1500 Tons/year Fruit compote
1000 Tons/year Jams

c. Expansion of Baquoba Canning Plant

The existing tomato paste line at Baquoba has a capacity of about 25 tons of paste per day. The following additional lines are being installed at the same location.

- Second Tomato paste line similler to the existing line.
- Canned Peeled Tomato line with a capacity of 1.6-2 tons/hr.
- Onion Dehydration Plant with a capacity of 6-7 tons of dry onion per day.

All the above new lines are expected to start operation during 1975.

d. Numaniya Canning Factory

A second tomato paste line is now being constructed in Numaniya with a capacity of 25 tons of paste per day .

Tomato juice line with capacity of 1.5 - 3 tons of Fresh tomato per hr. and Vinegerplant from date with a capacity of 5000 tons per year are also expected to be completed during 1975.

e. Balad Canning Plant

Tomato paste plant with a capacity of 50 tons per day will become operational during 1976.

Canning Plants Suggested for Execution:

The following plants are being suggested for execution as soon as approval of their feasibility studies are obtained.

- Baby food at Baled with capacity of 2500 tons/ year
- Tomato paste lines with total capacity 100 tons of paste per day.
- Onion Dehydration plant, 6-7 tons of dry onion per day.
- Grape Juice plant, with a capacity of 1500 tons per year.
- Canned vegetables in Kerbala with a capacity of 1-1.5 tons per day.
- Frozen vegetables at Baled with 2 tons per hr. capacity.

4. Consumption Pattern and Forecasts:

Table No. 14 shows the consumption pattern of the four main canned products during the years 1960-1969 for which data are available. These products are jams, date syrup, canned vegetables and fruits and tomato paste.

Except for tomato paste where consumption figures shows steady and almost regular increase, consumption of other canned products showed sharp fluctuations due to irregular supply of raw materials or irregular demand on these products. Therefore no sound basis could be obtained for forcasting satisfactorily future consumption of canned products except for tomato paste for which consumption forecasting until 1985 is shown on Table No. 15. Calculation of these forecast figures was obtained by extrapolating a straight line through data of 3 year averages to eliminate the effect of fluctuation on consumption patterns. Based on these forecasts Iraq is expected to consume about 20,000 tons of tomato paste during 1975 and about 25,000 tons during 1985. Table No. 16 shows the per capita consumption of tomato paste in Iraq during the years 1960-1969.

5. Problems Facing the Canning Industry in Iraq:

A. Availability of raw material:

Data of local production of fruits and vegetables in Iraq showed that the surplus available for canning industry is rather limited. Short supply of agricultural raw materials was the major obstacle hindering the growth of canning industry.

Development of agricultural production of raw materials for the canning industry is believed to be one of the most important fields where United Nations technical assistance could be utilized.

Tin plate plays an important part in the canning industry as packing material.

This comodity is entirely imported from foreign source. Raising prices of the tin plate and its scarcity in the market is another problem facing the canning industry in Iraq.

Use of substitutes like glass and plastics which could be made available locally are being encouraged.

b) Policies of agricultural raw materials:

The canning industry in Iraq is characterized by the domination of the public sector who operates about 90-95% of its activities. The agricultural production, on the other part, is operated mainly by the private sector and cooperatives in which the government have limited influence. Due to this situation, no regular supply of agricultural raw material could be secured for the canning industry.

Stimulation of agricultural private sector to supply part of the requirement of the canning industry was made through contracts made between the two parties in which the industry supplies seeds, loans, advice.. etc. to the farmer. This policy was rather successful in stumulating the production of two agricultural products needed by the canning industry, namely Tomato for paste production and water-melon for jam production.

c) Training of Personnel:

Training of personnel for the canning industry was very limited and on-the-job-training schemes was the only method used to bring up trained staff for this industry. The importance of training was then realized and plans was put

to build two training centres. The first one will be located in Baquba and devoted to the training of staff for the food industry in general while the second training centre planned to be built in Kerbala.will be oriented entirely to the education, research and training of personnel for the canning industry.

These two centres will bring up trained personnel for the canning plant already under construction or planned for execution in the future.

d) Exportability of Products:

Due to reason contributed to the high price of major raw and packing materials of canned products, it was difficult for these products to compete in foreign markets. Very limited quantities of canned food was exported to the Arabian Gulf countries where freight cost in an advantage to Iraqi exported commodities.

The table below indicates the value of exported canned products during fiscal years 1972-1973 and 1973-1974 and the countries to whome these products were exported.

Product	Value of canned product exported (Iraqi Dinars) 1972-1973	1973-1974	Countries to whome products were exported. 1972-1973	1973-74
Date Syrup	5952	66284	Syria	Syria, Lebanon.
Jams	5027	2206	Bahrain	Jorden, Kuwait, Quatar, Pakistan Abu Dubi, Tanzania, Cyprus, afganistan

Canned Vegetables	15947	8223	Kuwait, Bahrain	Cyprus, Afganistan
Total	26926	76763		

c) Technical Problems:

It is well known that Iraq is the major producer of dates in the world. The technology and know-how for processing of date into date syrup and other products is very limited in the world. Hence, it is very important that Iraq should develop his own technology for these products.

Among the dificulties encountered in the processing of date syrup was the following:

- The development of an economical method for the removal of pectin from the syrup. It is known that pectin could be removed or destroyed by enzyme or heat application.

  The first method is rather expensive while the latter could produce deterioration of the colour of the syrup by caramilization.

- The development of an efficient method of sterilizing date syrup in cans and improving its keepability without subjecting it to undue severe conditions.

- The extraction of juice from dates and the filteration and clarification of the juice display certain unique characteristics which require further study and development.

6. Conclusions

Data of local production of fruits and vegetables in Iraq showed that surplus available for canning industry is limited. Short supply of raw material was the major obstacle hindering the growth of canning industry.

It is expected that completion of the new canning projects will stimulate the growth of agricultural production and hence more raw material will be made available to the canning industry.

Development of agricultural raw materials production for canning industry is believed to be one of the most important fields where United Nations technical assistance could be utilized.

Table No. (1)

Comodities Used by State Canning Co. in Kerbala in Fiscal 72-73

Material	Unit	Quantity			Value ID			%
		Local	Imported	Total	Local	Imported	Total	
A) Raw Materials								
1. Fruits	Ton	706	-	706	11000	-	11000	
2. Vegetables	Ton	573	-	573	15000	-	15000	
3. Fresh Tomato	Ton	8218	-	8218	205000	-	205000	
4. Dates	Ton	2483	-	2483	25000	-	25000	
5. Conc. Tomato Paste	Ton	-	3860	3860	-	359000	359000	
Total					256000	359000	615000	67%
B) Packing Materials								
1. Tins & Cans	Thousand Units	5231	-	5231	155000	-	155000	
2. Tin Plate	Ton	-	375	375	-	47000	47000	
Total					155000	47000	202000	22%
C) Other Com.					106000		106000	11%
Ratio of Local Com. to Imported					56 %	44%		100%

Table No. 2

Local Production and Consumption of Vegetables (winter crop)

	Unit	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Area Planted	Donum	108321	101814	83309	102650	109121	121945	131051	144840	146362	157771
Production	Ton	117758	148113	173981	197100	151990	251772	262659	287394	290124	261921
Imports	Ton	15416	14575	20064	18437	20619	24375	26331	27104	32007	25203
Exports	Ton	-	-	-	-	-	-	-	-	1553	308
Local Consumption	Ton	133174	152688	194045	215537	172609	276147	288990	314499	320578	306816

Table No. 3
Production of Important Winter crop vegetables
during 1970 - 1971

Type of Vegetable	Area Planted Donum	Yeild Kgm/Donum	Production Ton	%
Green broad beans	63884	1582	101104	30%
Green Onion	28026	2794	67188	20%
Lettuce	14312	2817	40314	12%
Turnip	12318	2408	29667	9%
Radish	10532	2701	28449	8%
Cabbage	4449	3484	15501	5%
Swiss chard	8728	1728	15076	4.5%
Beet	4234	3306	13996	4%
Carrot	3442	3084	10615	3%
Spinach	5729	5729	8484	2.5%
Cauliflower	2463	2706	6661	2%
			337055	100%

Source: "Study of Production cost and yield of winter & summer crop vegetables in Iraq for season 1970 - 1971"
Prepared by studies and Research Div.
Ministry of Agriculture and Agrarian Reform, Oct. 1973

Table No. 4

Local Production and Consumption of Vegetables (Summer crop) except Tomato

	Unit	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Area Planted	Donum	288924	263819	284951	310021	381856	410592	434687	493743	468475	489277
Production	Ton	472416	505215	637622	675525	884411	946843	989875	1367781	1074022	1160811
Import	Ton	665	1264	1256	1308	1831	1731	1972	604	457	-
Export	Ton	-	-	-	554	821	1461	3861	5634	5860	21912
Consumption	Ton	473081	506779	738878	676279	885321	947112	987936	1262751	1068619	1138899

Table No. 5

Total Production of Winter & Summer Crop Vegetables with their relative importance from 1958 - 1959 to 1970 - 1971

	Summer crop vegetables 1000 Tons	Winter crop vegetables 1000 Tons	Total Production 1000 Tons	Ratio of Total Production	
				Summer crop	Winter crop
1958 - 1059	449	109	558	80.4%	19.6%
1964 - 1965	1133	251	1384	81.9%	18.1%
1965 - 1966	1229	267	1496	82.2%	17.8%
1966 - 1967	1509	297	1806	83.6%	16.4%
1967 1968	1303	304	1607	81.1%	18.8%
1968 - 1969	1381	302	1683	82.2%	17.8%
1969 - 1970	1447	281	1728	83.7%	16.3%
1970 - 1971	1974	340	2314	58.3%	14.7%

Source: Same as for table 3

Note: Figures in this table differ slightly from those of table 2 & 4 due to diffenent sources.

Table No. 6

Local Production and Consumption of Fresh Tomato

	Unit	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
Area Planted	Donum	110636	110452	114639	128653	126173	116730	146665	149082	173482	172472
Production	Ton	189048	195818	216402	241371	232157	220163	310680	382859	368160	355205
Import	Ton	42473	30026	62523	40763	49697	39822	30846	7279	2101	200
Export	Ton	-	-	-	-	99	310	753	145	833	477
Local Consumption	Ton	231521	225844	278925	282134	281755	259675	340773	389993	369428	354928
Quantity used for Tomato Paste.	Ton	-	-	-	6	28	607	1518	2812	21203	16000

Table No. 7
Consumption of tomato paste and Fresh Tomato

	1963	1964	1965	1966	1967	1968	1969
1. Imported Tomato Paste in Tons	5806	7747	10952	12566	12547	10874	10932
2. Its equivalent of Fresh Tomato (x 6)	51036	46482	65712	75395	75282	65244	65592
3. Total Consumption as Fresh Tomato	229910	278000	291556	354321	357416	347000	325267
4. Ratio of Local Production to total consumption	62.2%	68%	68%	61%	67.5%	67%	76.6%
5. Ratio of Tomato paste of fresh tomato as total consumption	22%	17%	22.5%	21%	21%	19%	20%

Table No. 8

Production & Consumption of Date

	Unit	1960	1961	1962	1963	1964	1965	1966	1967	1968
Production	Ton	270000	300000	320000	420000	310000	310000	280000	380000	330000
Exports	Ton	176001	217220	238927	202076	228757	235227	216713	268469	222623
Consumption	Ton	93999	82780	81073	167923	91643	74773	73287	111531	107377
Quantity used in making date syrup	Ton	1643	2018	2129	2452	3538	2234	2220	2916	5379
Ratio of Qt. used in date syrup to total consumption	%	1.3%	2.4%	2.6%	1.4%	3.8%	3.0%	3.5%	2.6%	5%

Table No. 9

No. of Fruit Trees and its Production according to 1971 GAgricultural Count

Type of Fruit	No. of production Trees	Production of every tree in Number	
		Min	Max
Orange	2,276,928	13	129
Sweet Lemon	149,178	4	53
Lemon	139,165	5	43
Pomegranate	2,243,322	6	45
Apple	1,013,020	6	33
Pear	78,273	1	28
Peach	99,021	1	23
Plum	130,620	2	37
Apricot	468,110	4	25
Grapes	10,952,816	3	25
Fig	314,200	4	30
Olives	47,775	2	28

Table No. 10

Exports & Imports of Fruits

Type of Fruit	Imports				Exports			
	1970	1971	1972	1973	1971	1972	1972	1973
Citrus Fruits	1000	683	404	115	3	2	2	1
Banana	3360	5229	4645	4034	-	-	-	-
Apple	12106	18345	23429	9407	300	204	95	203
Grapes	-	-	-	-	91	221	76	222
Pomegranate	-	-	-	-	107	91	74	59
Other Fruits	1412	1622	-	183	142	128	69	90

Table No. 11

Sales value of canned products produced by State Canning Co.
during the period 1967-1968 to 1973-1974 in Thousand Iraqi Dinars

Product	1967-1968 base year	1968-1969		1969-1970		1970-1971		1971-1972		1972-1973		1973-1974	
		I.D.	% *	I.D.	% *	I.D.	% *	I.D.	% *	I.D.	%	I.D.	% increase
Jams	99	138	39%	183	84%	164	65%	172	73%	179	80%	263	165%
Canned Vegetables	21	30	43%	67	219%	87	314%	95	352%	91	333%	142	576%
Tomato Paste	-	1	-	26	-	498	-	1393	base year	2642	89%	4789	243%
Date Syrup	41	61	49%	71	73%	42	2%	64	56%	91	121%	186	353%
Total	161	230	42%	347	115%	791	391%	1724	970%	3002	1763%	5380	3241%

* This ratio represent the percentage increase in sales value coupared to base year.

* Comparison is based on fixed prices

Table 11 continued
Quantities of Canned Products Produced BY State Canning Co.
during 1967 - 1968 to 1973 - 1974 in Tons

Product	1967-1968 base year	1968 - 1969		1969 - 1970		1970 -1971		1971-1972		1972-1973		1973-1974	
		Actual	%	Actual	%	Actual	%	Actual	%	Actual	%	Actual	%
1. Jams	614	616	-	509	(18)%	714	16%	839	36%	471	(24)%	9280	51%
2. Canned Veg.	74	16	(79)%	347	368%	337	355%	442	497%	536	624%	828	883%
3. Tomato Paste	1	4	-	162	-	1795	Base Year	4881	171%	11677	550%	11514	541%
4. Date Syrup	73	1025	Base Year	971	(6)%	673	(35)%	976	(55)%	1515	47%	3407	232%

Table (11 a)
Fixed Capital Development of State Canning Co.
in 1000 Iraqi Dinars

Base Year 1967 - 1968 ID.	1968 - 1969		1969 - 1970		1970 - 1971		1971 - 1972		1972 - 1973		1973 - 1974	
	ID.	% increase	ID.	% increase	ID.	% increase	ID.	% increase	ID.	% increase	ID	% increase
322	339	5%	383	19%	555	72%	658	104%	2294	612%	3112	866%

Table No. 12
Quantities of Products Sold
By State Canning Co. during
1972-1973 and 1973 1974

Product	Quantity Sold in Tons		% increase
	1972-1973	1973-1974	
Jams	681	985	45%
Canned Vegetables	487	752	54%
Date Syrup	1362	2969	118%
Tomato Paste	10926	17781	63%

Table 13

Planned Production of the State Canning Company for 1974-1975 in Tons

Product	Quantity
1. Jams	1000
2. Canned vegetables	1000
3. Tomato Paste	10 000
4. Date syrup	4200

Table No. 14

Production and Local Consumption of Canned Products

	Unit	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Date Syrup											
Production	Ton	1019	1251	1320	1607	2190	1642	1819	1661	3161	N.A.
Export	Ton	2146	963	729	1589	1183	1141	1548	1831	2080	2091
Consumption	Ton	-	288	591	18	-	501	271	-	1099	-
Tomato Paste											
Production	Ton	-	122	60	229	189	8	64	2	4	44
Imports	Ton	4478	4099	7375	8506	7747	10952	12566	12547	10874	10932
Consumption	Ton	4478	4221	7435	8735	7936	10960	12630	12549	10878	11076
Canned Veg. & Fruits											
Production	Ton	-	34	45	55	156	256	21	75	153	347
Imports	Ton	1368	1131	1230	798	856	659	792	462	616	N.A.
Exports	Ton	-	-	-	-	-	-	-	-	82	N.A.
consumption	Ton	1368	1165	1275	853	1012	924	813	537	687	-
Jams											
Production	Ton	N.A.	N.A.	N.A.	88	341	228	216	676	687	509
Imports	Ton	=	=	=	850	729	438	108	6	45	87
Exports	Ton	=	=	=	-	-	-	-	-	-	-
Consumption	Ton	=	=	=	938	1070	666	324	682	699	596

N.A. = Not available

Table 15

Consumption Forecast for Tomato Paste

In Iraq

Year	Expected Consumption in tons
1975	19 700
1976	20 700
1977	21 700
1978	22 700
1979	23 600
1980	24 600
1981	25 600
1982	26 600
1983	27 600
1984	28 500
1985	29 500

Table 16

Consumption Pattern & per consumption

of tomato paste

Year	Concumption Tons	Relative increase	Per Capita consumption kgm.	Relative increase
1960	4478	100.0	0.546	100.0
1961	4221	94.3	0.590	91.3
1962	7435	166.0	1.009	156.2
1963	8735	195.1	1.149	177.9
1964	8936	177.2	1.011	156.5
1965	10960	244.8	1.353	209.4
1966	12630	282.0	1.510	233.7
1967	12549	280.2	1.457	224.9
1968	10878	242.9	1.220	188.9
1969	11087	247.3	1.203	186.2

Chart No. 1

Development of Fixed Capital and Sales Value

State Canning Company